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A Few Observations on the Treatment of Gastro-Intestinal Disturbances in the Horse*

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It is now almost 40 years since appeared Caulton Reeks' classic treatise on colics. His teachings marked the end of sedative therapy generally. His followers have, in my opinion, gone rather to extremes in elaborating the stimulative treatment advised by Reeks.

The purpose of this paper is to try to show that, generally speaking, the common ailments of the gastro-intestinal tract of the horse can be treated on less heroic, more humane, and equally, if not more, successful lines.

Horses are very sensitive to pain, their reaction to it having severe physical and physiological repercussions. "Stimulation of sensory nerves in animals produces reflex inhibition of the gastro-intestinal movements. Similarly, painful stimulation or injury of any part of the body, especially of the abdominal and pelvic viscera, inhibits intestinal movements."[1] The foregoing hypothesis has influenced my treatment of the so-called "colics" for some considerable time.

I now propose to set out my methods of treatment for the following disturbances of the gastro-intestinal tract.

GASTRIC DISORDERS

1. *Gastric Impaction.*—A definite diagnosis of this condition is made by means of the stomach tube which is also the main means of treatment in that after a few laborious hours' lavage and siphonage the stomach is wholly or partially emptied of the offending ingesta and then left moderately distended with a warm, saline solution (*e.g.*, ¾ to 1 lb. common salt, ½ oz. of formalin, 2 to 4 galls. water). This is slowly pumped in. This is all the treatment necessary. On no account should parasympathetic stimulants be used even in graduated dosage.

2. *Simple Acute Gastric Tympany.*—Diagnosis is again by means of stomach tube, the diagnostic agent becoming instantly the therapeutic one. The gas should be allowed, if possible, to escape slowly. As a precautionary measure the stomach is washed out with a saline-formalin solution and left moderately distended with same.

DISTURBANCES OF THE SMALL INTESTINE

These are more common in the draught horses of the South Island than is supposed. This is due to: (1) chaff feeding to tired and sweating horses which are only occasionally put to spells of hard work. This may bring on a condition of impaction, especially of the terminal portion of the ileum. Diagnosis is by history of the case and evidence of the kind of fluid retrieved by the stomach tube.

Usually *post-mortem* diagnosis is provided by the animal. No treatment seems to be of much avail, the animal dying of toxaemia. Stomach tube withdrawal of stomach contents at intervals will prolong life for a few days. Hudson[2], in his article "Impaction at the ileo-caecal valve in the horse," has caused this condition to be more widely looked for than formerly; (2) again, the loss of water and chlorides in sweat of infrequently worked horses may be so great as to cause a severe spastic condition of the bowel on the ingestion of plain water. Diagnosis is by history of the case and symptoms. Pain is acute. The stomach tube does not help much in diagnosis. Stimulative treatment is harmful, especially those drugs stimulating parasympathetics. They only increase spasm and pain. Atropine, in spite of disadvantages, is a useful agent in overcoming this spastic and painful condition. It allows relaxation of spasm and allows the consequent distention of the bowel which acts both physically and physiologically—physically by moderate distention and physiologically by absorption of saline.

Harvey[3], in his article "Sweat, salt, water and colic," sums up the physiological basis of the above derangement of the small intestine.

The following quotation from Wright's "Applied Physiology" is interesting in connection with small intestine peristalsis[4]: "Normal peristalsis is probably due to a series of co-ordinated local nervous reflexes in response to the chemical and mechanical stimulation set up by food. Contraction occurs above the part stimulated and relaxation takes place below it." "Normal peristalsis is essentially independent of extrinsic nervous influences. Distention is necessary both for peristalsis and segmentation." The latter, *i.e.*, segmentation, though causing no forward movement of ingesta, mixes it, aids digestion and absorption, also squeezing lymph and blood out of the bowel and so aids their return to thorax.

Thus the whole aim of treatment of spastic conditions of the small intestine should be to bring the bowel back into normal function by relaxation, *e.g.*, with atropine and by distention with saline solution. Lately lentin (allied to acetylcholine) has been available, but though supposed to be *locally* effective in the smooth muscle of the intestine my results have not been as good with this agent as those obtained by atropine and distention. In extreme pain, chloral up to 2 oz. dosage should be given orally or intravenously. Recently Bayer's have claimed that they have a drug, novalgin, capable of relieving pain and spasm. It is given intravenously in 20 to 40 c.c. dosage. I have not been able to obtain this preparation in New Zealand. It is sincerely to be hoped this, at last, is the long looked for panacea for intestinal pain and spasm.

IMPACTION OF CAECUM

I have never been able to diagnose this condition in the living subject. Lang refers to this condition and claims that it can be successfully treated by the intravenous injection of a solution of sodium citrate and sodium chloride.

IMPACTION OF COLON

This condition is common in the grain-growing districts of the South Island and often due to the idle horses nibbling at the unburned wheat or straw stacks. Diagnosis is easy but the condition in the early stages gives rise to so little discomfort that there is delay in seeking skilled advice. The animal has no desire to drink. Toxaemia and dehydration are evident. Aloes has been the chief therapeutic agent for this condition for a long time and even now shares place of preference with the ammonium carbonate, etc., treatment of Caulton Reeks. Of Caulton Reeks' treatment I have no experience, but aloes (or aloin or istin) alone, even in solution, in my hands, has been uncertain, often too slow and attended with unsatisfactory after-effects. Yet aloes (or aloin or istin) are good purges and their bad after-effects can be offset by combining with salines. This combination has proved the best therapeutic agent in my hands for the above condition. The formula is ½ to ¾ oz. aloes, 1 lb. salt, 4 to 8 gallons water. Under field conditions in New Zealand enemata are of doubtful value; parasympathetic stimulants should be rigorously avoided.

SIMPLE FLATULENCE OF COLON

Diagnosis is by physical signs and rectal examination. If the condition is very acute puncture of the bowel must be resorted to. Salines with formalin per stomach tube remove and/or neutralise the offending contents. The condition of the fodder should be investigated.

COLITIS OF SPECIFIC ORIGIN

The commonest colitis of specific origin in New Zealand is due to a mass infestation of the bowl by sclerostomes. When the acute haemorrhagic stage has been reached nothing can be done.

PARASITISM

Bots.—Bot infestation is more serious in New Zealand than in Great Britain though not so serious as horse owners would have us admit. Carbon bisulphide is specific.

Ascarids.—They are relatively unimportant except in young animals. Carbon bisulphide and carbon tetrachloride are both effective.

Sclerostomes.—These are widespread and extremely vicious. The local effects are serious, as are remote effects in the arterial system. Medication is difficult and can only be partially effective. Carbon tetrachloride and oil of chenopodium have been useful but must now give place to phenothiazine. In the thin and anaemic parasitised horse, phenothiazine is dangerous, causing pronounced anaemia and death. In such subjects it is better to start treatment with a saline purge (this will remove many parasites), allow a period of time to let the animal build up and then give phenothiazine to complete the treatment. Preparations of arsenic suitable for intravenous use are helpful. Lang claims that sodium citrate-sodium chloride solution injected intravenously is effective in clearing up the effects of the strongyle larvae in the arterial system.

* Presented to the 20th Annual General Meeting of the New Zealand Veterinary Association (Division, N.V.M.A.) held at Wellington, June 2nd-4th, 1943.

Before I close this rather incomplete paper I should like to pass some remarks on some of the common remedies not already mentioned, used in gastro-intestinal disturbances of the horse.

Linseed oil served its day. It was useful as a menstruum for irritant drugs, and is in itself a nauseating purge. It must definitely give place to liquid paraffin.

Castor oil is good but is irritant and must also give place to liquid paraffin.

Parasympathetic stimulants must be generally classed as dangerous, though acetylcholine and lentin merit further use and trial.

Turpentine, ether and drugs of this nature are useful in combination with liquid paraffin but inferior to formalin and salines.

There are quite a few other conditions which could have been brought up (volvulus, etc.) but I have already written more than I intended. I have said little about the many cases of "colic" in which I have failed to make a definite diagnosis. They are many. I hope that even though the ailments of the "belly" of the horse may be but of academic interest to many of you, the sins of omission and commission I have perpetrated in this paper may provoke among you a lively discussion.

References

(1) Wright's "Applied Physiology," p. 500.
(2) Hudson (1936.) *Vet. J.*, Feb., p. 50.
(3) Harvey (1936.) *Vet. Rec.*, **48**, 639.
(4) Wright's "Applied Physiology," p. 496.

Discussion

Mr. Bowen: His opinion was that anodynes should only be used sparingly in the treatment of colic due to impaction of the intestine. In these cases treatment should be directed towards overcoming exhaustion and intoxication, re-establishing normal intestinal tone and peristalsis, relieving any very acute pain.

The exhaustion was best overcome by the use of stimulants such as ammonium carbonate 1 to 2 ounces, pulv. nux. vom. ½ to 1 ounce administered by stomach tube in about 1 gallon of cold water. Ammonium carbonate 1 to 2 ounces was repeated every 1½ hours.

Normal tone and peristalsis should be restored rapidly, and in a physiological manner. The pitressin factor of posterior pituitary extract was the ideal agent. Cholinergics should be rigorously avoided in the early stages. The posterior pituitary extract might be repeated every hour and a half until peristalsis, as judged by the frequency and force of the borborygmi, had been considerably augmented.

A purgative such as liquid extract of cascara, 2 ounces, or dioxyanthraquinone might be given early in treatment. Aloes was useless for such conditions, its action being slow and erratic. Oils were outmoded, being difficult to administer, slow and nauseant in their action.

Morphine gr. 3 to 6, hyoscine gr. 1/10 to 1/6, or atropin gr. 1/10 to 1/6 was found more suitable than chloral hydrate to relieve acute pain.

By the above treatment the horse was usually much improved and, indeed, in most cases, grazing at the end of 5 hours.

He had had success with Caulton Reeks's method, but here recovery was slow and many revisits to the patient were required.

Enemata had not proved to be of much value under field conditions. He had seen impaction of the caecum (sand colic) treated successfully by repeated doses of eserin gr. ½.

Dr. N. Siegel: Mr. McDonald had not mentioned intestinal calculus. How did he diagnose and treat this condition? How would he treat a case of colic in a horse which had consumed half a sack of barley? He had found chloral hydrate very useful; it did not stop peristalsis. He still used a good deal of linseed oil, istin, and turps.

Lt.-Col. Thompson: In the British Army efforts were mainly directed to the prevention of colic; in fact, it was considered a disgrace to the veterinarian in charge if colic occurred. However, when it did occur, chloral hydrate was invariably used.

Mr. Blake confessed to being somewhat old-fashioned, but he did not worry very much whether the colic was fore or aft. In America where horses were exposed to a sudden change of diet, colic was common. At Wairoa he had treated 60 cases of it with arecoline: none died. If arecoline failed to produce the desired effect it was repeated.

Mr. McDonald, in reply to Mr. Bowen, said that simple spasmodic colic did not require much treatment; in fact, such cases usually recovered before he got to them. Atropine dried the mucosa, but diluted the intestinal contents and relieved the hypochlorhydria. He had had no experience of pituitrin in the treatment of colics. Arecoline, when effective, was very good, but it might cause the death of the patient. He thought that more humane methods should be employed. He had never seen a case of calculus, which was apparently uncommon in New Zealand.

With regard to the treatment of impaction due to ingestion of excessive barley, the stomach tube should be employed, but it was a slow and tedious task. A little formalin might be added to keep down fermentation. He agreed that chloral hydrate was still valuable and said that he had had little experience with the drastic treatment of Caulton Reeks.

Weekly Wisdom

"*If you have operated conscientiously on the rich for a proper fee, and on the poor for charity, you need not play the monk, nor make pilgrimages for your soul.*"—Guy de Chauliac, Montpelier, 14th century.

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Under a new carcase dressing process tried in Australia, sterilised air is injected by an air gun between the skin and flesh, which, it is claimed, not only greatly facilitates removal of the pelt, but results in a considerably improved skin, as well as improvement in the keeping qualities of the carcase meat. Following inspection of a lamb carcase, which had been in cold storage at Newport for over 14 months, the Meat Advisory Committee has appointed a sub-committee to enquire further into the possibilities of the new method known as the Roach air process of skinning and dressing sheep and lambs.—*Meat Trades Journal.*

CLINICAL COMMUNICATION

Sugar Beet Poisoning in Cattle

F. CHAMBERS, O.B.E., F.R.C.V.S.
Wolverhampton

Although sugar beet has been grown in large quantities in this district for many years I have never previously experienced ill effects in cattle from the feeding of the whole beet until this season. That the tops of the plant have poisonous properties if fed in their fresh state is well known, and it is for this reason that they are left to mature for several days before being fed.

The first outbreak of illness which I experienced from the feeding of whole beet occurred in January of this year and was due to cattle feeding from a heap of beet which was awaiting transport to the factory. A second outbreak in another herd was also due to a similar cause, but in another instance an owner actually fed the beet to his cows owing to difficulty in obtaining permits to send the beet to the factory.

Outbreak No. 1

On the day following ingestion of the beet, four of the cows were found to be very ill, *viz.*:—

(i) Roan shorthorn cow was down and unable to rise. She had a thin watery diarrhoea, temperature of 101, complete loss of appetite, and her rumination was suspended.

A subcutaneous injection of 400 c.c. of calcium borogluconate solution was given and powders containing ammon. carb., sodii bicarb., gentian, zingib., and nux vom. were prescribed to be given twice daily.

(ii) A red shorthorn cow had a temperature of 101, complete loss of appetite, and cessation of rumination. Similar powders were prescribed.

(iii) Another red shorthorn cow was found standing but was very dull, had complete loss of appetite, and no faeces had been passed during the previous 24 hours. This cow died during the night. *Post-mortem* examination the next morning revealed a fair amount of semi-masticated sugar beet in the rumen. No lesions could be found except a slight congestion of the mucosa of the abomasum.

(iv) A white shorthorn cow had great difficulty in rising, and very acute diarrhoea.

Calcium borogluconate solution was given subcutaneously, together with a drench consisting of equal parts of tinct. opii and spts. ether nit.

The diarrhoea was much better later the same day, when stimulant and antacid powders were prescribed to be administered twice daily.

With the exception of cow No. 3 all the affected animals made a rapid and uneventful recovery.

Outbreak No. 2

The history of this outbreak was similar, illness commencing on the morning following the ingestion of the beet.

(i) A Welsh cow, due to calve in three weeks' time, was found down and unable to rise. She was badly blown, had a watery diarrhoea, sunken eyes and was obviously very ill.

Calcium borogluconate was administered subcutaneously. Death occurred during the night and no *post-mortem* examination was made.

(ii) A shorthorn cow was down and unable to rise, and had severe diarrhoea. Calcium borogluconate was injected and later the same day she commenced to feed, appearing normal the next morning.

(iii) Another shorthorn cow had diarrhoea and a temperature of 101. Stimulant and antacid powders were prescribed.

On the following morning three more cows were found to be affected.

(iv) A Kerry heifer, in-calf, was found down and unable to rise. Her temperature was 100·4°, she had watery diarrhoea and was blown. Similar powders were prescribed and although slight improvement seemed apparent she would not eat and eventually died three days later.

(v) An Ayrshire cow was found down and unable to rise. Calcium borogluconate was again prescribed and this animal was able to stand later the same day, being normal in a few days.

(vi) A shorthorn cow had acute diarrhoea, cessation of rumination and loss of appetite. Stimulant powders were prescribed and this animal also made an uninterrupted recovery.

All the affected animals which were able to stand were lame in one hind leg, but careful examination revealed no apparent cause.

Outbreak No. 3

This outbreak was caused by the owner actually feeding whole beet to his herd. On the following day eight cows were found to have acute diarrhoea, cessation of rumination and complete loss of appetite. Powders containing ammon. carb., nux. vom., sodii bicarb., and catechu were prescribed, recovery in all cases being uneventful.

ABSTRACTS

[Infestation with Liver Fluke among 73,000 Cattle slaughtered in Great Britain during June, 1942. Peters, B. G., and Clapham, P. A. (1942.) *J. Helminth.* **20.** 115-138.]

At a conference called by the Agricultural Research Council in March, 1942, to consider the infestation of cattle with liver fluke, it was felt that there was a large but not accurately assessed economic loss, particularly harmful in war-time, due to partial or total condemnation of cattle livers infested with fluke. Arising from this, a questionnaire was circulated to abattoirs in Great Britain and returns, covering 73,372 cattle slaughtered during three weeks in June, 1942, were made. Four degrees of infestation were recognised, *viz.*: (1) clean, (2) flukey but not condemned, (3) flukey and partially condemned, and (4) flukey and wholly condemned. Over the whole country 17·6 per cent. of cattle livers were found to be flukey, of which 4·7 per cent. were not condemned, 7·7 per cent. were partially, and 5·2 per cent. wholly condemned. The cleanest areas were south and south-east England and the most flukey were N.W. England with North Wales, and S.W. England with S. Wales. When, however, clean livers were omitted and the other three degrees were expressed as percentages of all flukey cattle the values for the country as a whole under degrees (2), (3) and (4) were 26·7 per cent., 43·7 per cent. and 29·6 per cent. respectively; thus, more flukey livers are classed as partially condemned than as either of the other groups. Totals for the whole country show that imported cattle are about twice as flukey as the home-bred, while cows have an incidence about twice as high as steers or bulls. Further local analysis of home-bred cattle shows that Wales has the most flukey cattle, particularly cows, which happen to form an unduly large proportion of the total cattle slaughtered in that area. On the simplifying assumption that half of the partially condemned livers are available for sale, the total number of condemned livers plus half the number of partially condemned livers, reckoned as whole livers, gave 6,649 livers condemned during the period. Assuming the average weight of an ox liver to be 12·5 lb., it was estimated that about 643 tons of liver per annum at a retail price of £84,036 represents the economic loss to the meat industry from fluke infestation. Additional data from five large abattoirs and covering periods varying up to 17 years prior to 1942, agree in showing a much higher incidence of condemned livers than is revealed by the survey. It is estimated roughly that the condemnations in a normal year are likely to be about 2·5 times as great as those indicated in the survey, so that the normal loss in terms of retail price would be about £200,000 per annum. Attention is drawn to the fact that in assessing the total loss due to fluke in cattle, it would be necessary to include reduced meat-, milk-, and possibly calf-production in infested animals; these factors are ill-defined but certainly large.

J. N. O.

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[The Relative Value of Sedimentation and of Saline-Egg Culture in the Examination of Bovine Vaginal and Preputial Samples for *Trichomonas foetus*. Hammond, D. M., and Bartlett, D. E. (1944.) *J. Amer. vet. med. Ass.* **104.** 10-12.

On the basis of the findings reported in this paper, the authors state that efficiency in the diagnosis of trichomoniasis in cattle is not materially improved by the routine culturing of specimens on saline-egg medium. Direct microscopic examination alone revealed the presence of *Trich. foetus* in 88 per cent. of cases whereas, in two series of examinations, in only 12 and 2 per cent. of cases was the parasite revealed by culture only. Although these findings suggest the advisability of combining the two methods, the evidence shows that the combination could not be relied upon to give a significantly higher incidence of positives than either single method as microscopic examinations gave some positive results which were negative in culture, and *vice versa*.

It would appear, however, that the accuracy of the direct microscopic method is improved if the examination is made after an interval of from one to three hours, during which time the trichomonads settle. Specimens for microscopic examination can be taken from the bottom of the tube in the case of vaginal discharges and from the superficial layer of the sediment in the case of preputial discharges.

G. D.

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[Measures of Growth Rate for Use in Swine Selection. Comstock, R. E., Winters, L. M., Jordan, P. S., Kiser, O. M. (1942.) *J. agric. Res.* **65.** 379-389. (Minnesota Agric. Exp. Sta.).]

These studies were made with data collected in connection with the U.S. Regional Swine Breeding Laboratory project, and obtained mostly from Poland China pigs, but partly from a strain "Minn No. 1" which had been developed by *inter se* mating of pigs from a cross of Tamworth and Danish Landrace breeds.

From original observation, and from those of other authors, it is calculated that weaning weight, which is modified by the inequality of nutritional opportunity both within and between litters, is a poor criterion of inherited ability to grow. Weaning weight is part of the weight at 180 days, and it also affects the latter by being directly responsible for a part of the variation in weight gained between 56 and 180 days. Post-weaning growth is more heritable than weaning weight, while weight at 180 days falls between the two.

From a discussion of which weight or weight-increase should be taken as an index for selection purposes, it is suggested that the nutrition of pigs prior to weaning should be bettered and made more even by supplementary feeding. The heritability of weaning weight, and of weight at 180 days, would therefore be increased.

Under present conditions, measuring post-weaning growth will be more useful than measuring weight increase during the whole period of birth to market weight.

A. N. W.

REPORT

[Report of Director of Abattoir and Livestock Market Department, City of Johannesburg, for the period July 1st, 1942, to June 30th, 1943.]

This report by Mr. A. C. Kirkpatrick is packed with information and devoid of any padding. The staff consists of 211 Europeans and 185 natives. Activities include, livestock marketing; slaughtering and inspection; veterinary treatment of animals belonging to the Corporation as well as those at Johannesburg Zoo; fattening cattle on farms; examination of dairy cows, and the incidental reporting of certain diseases to government departments; collection of specimens; also that assistance to outside bodies usually associated with local authority officers the world over.

About one and three-quarter million animals passed through the livestock markets, both open and quarantine. Since the markets were opened in 1910 nearly 40 million animals have been dealt with there. Nearly one-and-a-half million animals were slaughtered at the abattoir during the year under review, and 1,188 tons of meat condemned. Most of this meat was rendered unfit for human food through hydatid diseases and bruising. Tuberculosis occupies a low place in the list of diseases causing meat condemnation in Johannesburg, and pork meat and offal provides the main source of that disease. The Secretary for Public Health was notified of 103 cases of cattle tuberculosis and 388 porcine, during the year. Three cases of anthrax were also notified to the Agricultural Department.

The City Council possesses 1,779 mules and horses, and 726 oxen, whose state of health has been good, as has that of the 1,790 Zoo animals. On the Corporation farms 436 cattle are being fattened; 242 fattened stores being sold during the year. The number of veterinary inspections of dairies has been reduced owing to absence of some members of the staff on military service. As things stand, 114 dairies were inspected, and 4,497 cows inspected for udder tuberculosis and other diseases. No cases of open tuberculosis were found, and of the other diseases, mastitis and indurated udders were the most prevalent. Tables are attached giving full statistics about the various activities of the department.

D. J. A.

MINIMUM ROUGHAGE REQUIREMENT FOR HORSES

Opinions differ as to the amount of rough forage (hay, straw) that should be allowed in order to maintain the health and working condition of horses. Experts warn against the feeding of more than 1 to 1·5 per cent. of roughage per day body weight. The standard field ration of American Army horses is 14 lb. for riding horses and 16 lb. for draft breeds weighing over 1,150 lb., or 1 to 1·4 per cent. of the live weight. (Experience of the last war, in which the horse-man ratio was about 1:6, showed that horses deprived of hay developed a rapacity for roughage that was manifested by eating limbs, whole trees, bark, wooden feed boxes and mangers.) The importance of the rough-concentrate ratio lies in the physiology of digestion in the herbivorous mammal. Gastro-intestinal peristalsis and secretion depress in the absence of the stimulating action of rough feed and, on the other hand, too much overwhelms these functions without providing adequate nutrition. Hence, a scientifically determined balance between roughage (hay) and concentrate (grain) is the basic issue in the feeding of the bulky, hard-worked solipe.

The question is complicated by the work horses are doing, in the light of metabolic and katabolic differences. While in idle horses, 1·5 lb. of hay equals 1 lb. of oats as a source of energy, the ratio should be 2·5 to 3·5 lb. per lb. of oats in horses at work.—U.S. Army Veterinary Corps Bulletin.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Apr. 19th.—Meeting of the Comparative Section of the Royal Society of Medicine, 1, Wimpole Street, W.1, 2.15 for 2.30 p.m.

Apr. 21st.—Annual General Meeting of the Mid-West Division, N.V.M.A., at Bristol, 2.30 p.m.

Apr. 21st.—Meeting of the Dumfries and Galloway Division, N.V.M.A., at Dumfries, 2 p.m.

Apr. 26th.—Sixtieth Annual General Meeting of the Western Counties Division, N.V.M.A., at Exeter, 1.45 p.m.

Apr. 27th.—Annual General Meeting of the Association of Veterinary Inspectors, in London, 2 p.m.

Apr. 28th.—Meeting of the Yorkshire Division, N.V.M.A., at Leeds, 3 p.m.

Apr. 28th.—Meeting of the Lancashire Division, N.V.M.A., at Liverpool, 2.30 p.m.

Apr. 28th.—Meeting of the Royal Counties Division, N.V.M.A., at Reading, 2.15 p.m.

Apr. 29th.—Meeting of the Society of Women Veterinary Surgeons, in London, 2 p.m.

May 9th.—**R.C.V.S. Council Election.** Last date for receipt of nominations.

May 11th.—Meeting of the South-Eastern Division, N.V.M.A., at Tonbridge, 2.30 p.m.

May 22nd.—R.C.V.S. Council Election. Voting papers issued.

May 30th.—R.C.V.S. Council Election. Last day for receipt of voting papers.

June 6th.—**R.C.V.S. Annual General Meeting.**

June 7th.—R.C.V.S. Committee Meetings.

June 8th.—**R.C.V.S. Council Meetings.**

June 27th.—R.C.V.S. Examinations begin (provisional date).

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VETERINARY EDUCATIONAL TRUST

Offer of Research Fellowships and Undergraduate Scholarships

It is with much pleasure that we read in to-day's issue that the Veterinary Educational Trust has made sufficient progress to be able to offer such a display of educational awards as is announced in our advertisement columns.

The balance between under- and post-graduate studies is of particular interest, the Trust evidently being aware of the great dearth of post-graduate fellowships or exhibitions.

The value of these fellowships and scholarships is most attractive, and should do much to encourage a genuine interest in research and more detailed study of the many problems which confront us.

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PERSONAL

Birth.—Constance.—On April 6th, 1944, at the Queen Elizabeth Hospital, Birmingham, to Margaret Jean, wife of L. Constance, M.R.C.V.S., The Cleeve, Rodbourne, Malmesbury, Wilts., a daughter—Susan.

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Marriages.—Brown—Craigs.—The wedding took place on April 3rd, 1944, at St. James's Church, Morpeth, of Geoffrey F. Brown, M.R.C.V.S., The Retreat, Morpeth, Northumberland, and Elizabeth Craigs, Tritlington Hall, Morpeth.

Eastwood—Samson.—On March 29th, at St. Mary's, Osterley, Richard Eastwood, only son of Mr. and Mrs. J. Eastwood, Thornbury Avenue, Isleworth, Middlesex, to Dorothy Samson, only daughter of Mr. and Mrs. L. R. Samson, Seven Speir Hall, Charsfield, Suffolk.

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Veterinary Director-General of Canada.—The appointment of Dr. Mark Barker as Veterinary Director-General of Canada has been announced by the Dominion Department of Agriculture, which he entered as a veterinary inspector, Meat Inspection Service, in 1908. Dr. Barker succeeds Dr. A. E. Cameron, who retired twelve months ago.

R.C.V.S. OBITUARY

Richardson, Henry Edward, Market Hill House, Hedon, E. Yorks. Graduated N. Edinburgh, June 2nd, 1891. Died February 20th, 1944.

Standley, Harry P., Norwich. Graduated London, August 26th, 1895. Died, March, 1944.

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Frederic Crowhurst

An Appreciation

(Contributed)

The announcement of the death of Frederic Crowhurst in the issue of *The Record*, March 25th, must have come as a great shock to those of his friends who did not know he was in ill-health. The great regret felt at his passing, however, must have been mellowed by many happy memories. For who could know him and have his friendship without loving Fred?

Frederic Crowhurst was born in 1875, and thus had almost reached the allotted span of life. He came of one of those great English veterinary surgeon families, the male members of which through several generations must, without doubt, have had a common inspiration: the love of a horse. Alas, with the passing of the inspiration so pass the veterinary surgeon families! He himself qualified at the age of 22. In spite of having reached an age at which most men do not think of soldiering he joined the R.A.V.C. shortly after the outbreak of the first Great War, and soon found himself overseas in France. His posting to No. 7 Veterinary Hospital at Forges-les-Eaux may have been just an ordinary routine posting to a hospital before being sent up country to a smaller unit nearer the line of active operations, but it is highly probable his retention there was not quite so casual, for there he found his old college chum, Bruce Lake, who must mourn his memory, Major in command of the hospital; not but that every officer and man in the unit was pleased that he remained attached there to the end. His cheerful outlook on life and his unruffled equanimity under all circumstances were a great help and encouragement to all, and were highly treasured. Whatever the stress of work or weather he always looked for and found the first bit of blue sky and the first small flower heralding the return of sunshine and of spring. And so, truly may it be said that Frederic Crowhurst on his way through life only looked for, and found, the best in nature and in his fellow-man!

His naturally retiring disposition did not allow of his entering actively into veterinary politics, but that he had the well-being of his profession at heart was shown by his holding the Presidency of the South-Eastern Veterinary Medical Association for three years.

He married after the last war and settled down in practice at Marden, in his dearly loved native county of Kent. He is survived by his wife, to whom the sincere sympathy of all goes out in her bereavement.

. . . . .

G. A. T. writes:—

"I hope that an abler pen than mine will render tribute to the late Frederic Crowhurst.

"I well remember his genial figure at Forges-les-Eaux Veterinary Hospital, dealing with a volatile Parisian who bought the cast animals for boucherie chevaline. Many years later our acquaintance was renewed and I was able fully to appreciate his professional skill and great kindness to those willing to learn.

"The world is the poorer by the passing of this great gentleman and fine type of country practitioner."

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ANIMAL HEALTH PROFESSORSHIP FOR ABERYSTWYTH

An offer by Lord Milford of Llanstephan to provide an endowment equivalent to £1,600 a year for ten years for the establishment at the University College, Aberystwyth, of a research professorship in animal health has been accepted by the college council.

The subject of animal health is defined in very broad terms, but it is hoped that the new research professor when appointed will devote particular attention to problems relating to livestock production under Welsh conditions, and that his work will be carried out so far as possible in conjunction with that of the Welsh Plant Breeding Station at Aberystwyth.

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ROYAL ARMY VETERINARY CORPS

Mention in Despatches

The following announcement is made in the issue of the *London Gazette* dated April 6th, 1944:—

The King has been graciously pleased to approve that the

following be Mentioned in recognition of gallant and distinguished services in the Middle East:—

Col. (temp.) E. S. W. Peatt, O.B.E., F.R.C.V.S.
Maj. (temp. Lt.-Col.) C. P. Fisher (Res. of Off.).
Maj. (temp. Lt.-Col.) C. H. S. Townsend, O.B.E., M.C., F.R.C.V.S. (Res. of Off.).
Maj. (temp. Lt.-Col.) A. P. MacDonald.
Capt. (temp. Maj.) R. I. Macrae.

* * * * *

The following announcements are made in the issue of the *London Gazette* dated March 24th, 1944: To be Lts.: Kenneth Coutts Gammack (306805), February 17th, 1944; Frank Baker Brocklehurst (309906), Royston Llewellin Cox, B.Sc. (309404), David Gordon Clow (309405), Robert Peter Evans (309918), Arthur Henry Seymour Hayward (309917), John Goudy Morrison (309919), Lewis Stanley Pfob (309523), Arthur Mackay Pomphrey (309403), February 21st, 1944; Frank Alexander (309979), Walter Buchanan Milburn, B.Sc. (309905), Ernest Victor Thomas (309918), February 28th, 1944.

* * * * *

PROMOTION OF SCIENTIFIC RESEARCH AND DEVELOPMENT

Existing Government Machinery

Existing Government machinery for the promotion of scientific research and development is described in a White Paper issued last week (Cmd. 6514, price 2d. net). It is intended to be a background for the discussion of the part which the Government can play in this important field after the war. An account is given of the Government organisations which are concerned with research and development related to the problems of industry. For fundamental research and for the education of research workers responsibility largely rests with the universities, for which purposes assistance is given by the Government.

There are now in existence in Great Britain more than 20 agricultural research institutes and stations covering a wide variety of subjects. Most are not owned or managed directly by the State; some are attached to the universities, and others are owned by associations representing branches of the agricultural and horticultural industries. The Minister of Agriculture and the Secretary of State for Scotland have recently set up new machinery designed to ensure that the results of research are applied as rapidly as possible in farming. The Agricultural Improvement Councils appointed by these Ministers are to keep in close touch with experiments in new farming methods and to advise, after test, on their introduction into ordinary farming practice.

As the Minister responsible for the Department of Scientific and Industrial Research, the Medical Research Council, and the Agricultural Research Council—their work is briefly described—and as President of the Scientific Advisory Committee of the War Cabinet, the Lord President of the Council has, as a matter of administrative convenience, come to be regarded as the member of the War Cabinet responsible for the general oversight of the Government scientific organisation.

The memorandum, both on security grounds and for the reason that it is designed to provide a background for the discussion of plans for after the war, does not deal with the great volume of research and development which has been directed to the requirements of war production and the fighting services.

* * * * *

THE STADER DEVICE IN THE TREATMENT OF FRACTURES

The reduction and fixation of fractures with the device known in veterinary surgery as the Stader splint (invented by Dr. Otto Stader, an Illinois veterinarian) is widely used by the Medical Corps of the U.S. Navy. As was shown by its use in dogs, this device has the advantage of reducing and retaining fractures by external skeletal fixation which dispenses with the use of heavy splints, casts and leg-stretching apparatus. The treated subject may amble about in lieu of lying in bed, and there is no obstacle to the local treatment of the wound in compound fractures. Permanent, skeletal deformation is prevented and much of the pain and distress of the injured is overcome. The device consists of four steel pins, two for each segment, and a connecting medium for re-aligning the fractured bone and holding it securely fixed. Animals treated with the Stader device walk from the operating table to romp and live in the open while the bones are uniting, and according to human orthopaedic literature, these results are even more pronounced in the human being.—War Conference, America Veterinary Medical Association, St. Louis, August, 1943.

According to the Ministry's divisional veterinary inspector, sheep scab in Merioneth has become alarming, with 52 confirmed outbreaks in the past year. There are 400,000 sheep in this county and double dipping will be enforced.

* * * * *

Shropshire Chamber of Agriculture is urging the taking of steps to control contagious diseases in cattle, recommending compulsory notification, including contagious abortion, to be followed by the application of such measures for the eradication of the disease as the veterinary profession might suggest. It thinks that calf vaccination should be made compulsory in all herds.

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SCHEME FOR THE CONTROL OF DISEASES OF DAIRY CATTLE

Statement showing the Number of Undertakings notified to the Ministry of Agriculture during the Month ended March 31st, 1944

County	Undertakings Notified		Total Undertakings		
	During Month	Previously	Number	Number of Cattle	
				Cows	Heifers
ENGLAND					
Bedford	—	41	41	930	510
Berks	2	99	101	3,505	2,156
Bucks	1	85	86	3,209	1,654
Cambridge	—	15	15	353	152
Chester	4	395	399	13,009	4,435
Cornwall	—	8	8	158	105
Cumberland	—	63	63	1,597	1,406
Derby	4	307	311	9,071	4,964
Devon	6	235	241	3,801	2,277
Dorset	—	71	71	2,200	1,103
Durham	3	270	273	6,002	2,091
Essex	—	252	252	8,832	5,088
Gloucester	1	104	105	3,118	1,662
Hampshire	4	386	390	11,149	7,137
Hereford	—	29	29	432	222
Hertford	5	72	77	2,318	1,422
Hunts	—	14	14	470	311
Isle of Ely	—	2	2	26	54
Isle of Wight	—	15	15	267	128
Kent	2	148	150	3,784	2,109
Lancs	4	222	226	6,494	2,068
Leics	1	91	92	2,404	1,646
Lincs (Holland)	—	3	3	25	11
Lincs (Kesteven)	—	23	23	311	146
Lincs (Lindsey)	6	97	103	1,964	1,097
Middlesex	—	16	16	641	307
Norfolk	—	189	189	5,695	3,785
Northants	1	80	81	2,174	1,499
Northumberland	—	60	60	2,100	1,039
Notts	2	157	159	3,704	2,124
Oxford	—	41	41	1,247	1,104
Rutland	—	8	8	138	92
Salop	4	271	275	8,331	3,984
Soke of Peterborough	—	1	1	37	31
Somerset	3	231	234	5,951	2,749
Staffs	3	209	212	6,221	3,287
Suffolk, E.	2	93	95	2,230	1,626
Suffolk, W.	—	51	51	1,084	650
Surrey	—	118	118	3,286	1,497
Sussex, East	—	183	183	4,766	2,673
Sussex, West	1	139	140	3,810	2,166
Warwick	2	133	135	3,382	1,943
Westmorland	—	15	15	459	546
Wilts	1	90	91	3,728	1,713
Worcester	2	154	156	3,320	1,500
Yorks, E.R.	3	96	99	1,534	854
Yorks, N.R.	1	120	121	2,473	1,470
Yorks, W.R.	6	265	271	6,686	2,591
WALES					
Anglesey	1	43	44	763	565
Brecon	—	9	9	199	108
Caernarvon	—	111	111	1,806	951
Cardigan	3	25	28	488	339
Carmarthen	1	234	235	4,220	2,174
Denbigh	1	61	62	1,235	701
Flint	1	113	114	2,495	1,078
Glamorgan	4	88	92	1,523	568
Merioneth	—	10	10	125	68
Monmouth	—	52	52	1,246	744
Montgomery	—	17	17	326	243
Pembroke	1	91	92	1,680	1,186
Radnor	—	—	—	—	—
TOTALS	86	6,621	6,707	174,562	93,909

Notes.—(1) Operative periods of undertakings: 1 year, 1,449; 2 years, 573; 3 years, 4,685. (2) Undertakings renewed for a further period: 1 year, 424; 2 years, 101; 3 years, 113. (3) Undertakings not renewed at end of operative period, 225. (4) The figures showing the number of undertakings notified during the month relate to entirely fresh undertakings and do not include undertakings renewed for a further period. Undertakings which have been cancelled or not renewed are not included in the figures for previous notifications.

County	Undertakings Notified		Total Undertakings		
	During Month	Previously	Number	Number of Cattle	
				Cows	Heifers
SCOTLAND					
Aberdeen	—	28	28	1,195	404
Angus	—	20	20	771	315
Argyll	1	5	6	113	115
Ayr	—	41	41	1,372	1,035
Banff	—	4	4	121	42
Berwick	—	2	2	53	22
Bute	—	—	—	—	—
Caithness	—	—	—	—	—
Clackmannan	—	5	5	179	148
Dumfries	—	13	13	672	551
Dumbarton	—	3	3	105	86
East Lothian ..	—	3	3	145	88
Fife	—	33	33	1,229	563
Inverness	1	9	10	349	192
Kincardine	—	5	5	231	126
Kinross	—	3	3	59	32
Kirkcudbright ..	—	15	15	886	701
Lanark	1	19	20	718	491
Midlothian	—	1	1	44	69
Moray	—	—	—	—	—
Nairn	—	1	1	14	—
Orkney	—	—	—	—	—
Peebles	—	5	5	101	45
Perth	—	33	33	752	428
Renfrew	—	9	9	384	297
Ross-shire	—	3	3	89	65
Roxburgh	—	—	—	—	—
Selkirk	—	—	—	—	—
Stirling	—	28	28	828	641
Sutherland	—	4	4	102	64
West Lothian ..	—	1	1	23	18
Wigtown	1	24	25	1,692	829
Zetland	—	—	—	—	—
TOTALS ..	4	317	321	12,227	7,368

Notes.—(1) Duration of undertakings: 1 year, 47; 2 years, 39; 3 years, 235. (2) Undertakings renewed for a further period (included in column 2 of statement): 1½ year, 26; 2 years, 3; 3 years, 1. (3) Undertakings expired and not renewed (not included in column 2 of statement): 48. (4) The figures showing the number of undertakings notified during the month relate to entirely fresh undertakings.

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DESPECIATED BOVINE SERUM (D.B.S.)

In the present war, extensive use has been made, as is well known, of human plasma for the treatment of cases of sudden collapse produced by wound haemorrhage. Its use is now increasing rapidly for the treatment of other conditions associated with hypoalbuminaemia, such as the extreme debility following suppurating wounds. For several years, panels of blood donors have been formed among human volunteers within call of hospital centres, the need for special allocation of the blood or plasma of a particular donor to the patient being caused by the existence of the recognised four main human blood groups, as otherwise the intravenous inoculation of blood or plasma belonging to a different group would agglutinate the red blood corpuscles, either of the patient's or the donor's blood, within the blood vessels, resulting in severe shock and perhaps death. Some studies, which are by no means exhaustive, have been carried out in this direction upon the various domesticated animals, and in some of them the problem appears to be at least as complicated as in the human subject. At the present time, for ease of transportation and storage, human plasma collected from "blood banks" is dried at low temperatures on a large scale, for in this state the proteins remain unaltered and can be readily redissolved.

Much work has been done to find a substitute for human plasma in the treatment of the human subject, but hitherto no suitable material has been found. During the last war, Bayliss's (1916) 6 per cent. gum acacia in normal saline was introduced and found to be very efficient, but it had the defect that it was not metabolised in the system, and so much of it remained permanently in the tissues. Various organic substances, such as isinglass, pectin, gelatin, methyl cellulose, and, more recently, periston (polyvinyl pyrollidon), have been tried. Crude bovine serum has been found unsatisfactory, about 50 per cent. of the patients tested beforehand with an intradermal dose showing disturbing reactions, and a somewhat higher percentage still of those injected after testing in this way showing either an immediate reaction or serum sickness, even when administration was carried out at the very slow rate which would be useless in treating ordinary cases of shock. (Kremer *et al.*, 1942.)

In a recent paper (*Brit. Med. J.*, 1944, Jan. 15th, p. 73), Dr. F. R. Edwards, of the Department of Surgery, University of Liverpool, appears successfully to have overcome these difficulties in using bovine serum. The salting out of the globulins to eliminate toxic antibodies with sodium sulphate, yielded an unsatisfactory product. Hence recourse was had to controlled heating for this purpose, to a temperature just above 70° C. Destruction of the agglutination factor starts at about 60° C. and is complete between 70° and 71° C. Total coagulation of the protein content, however, takes place at 72° C., and so, to prevent coagulation, a small amount, 0·20 per cent. by volume of formalin, was added, and, after shaking, 0·20 per cent. by volume of 0·88 ammonia, to convert the formalin into the innocuous compound, hexamine. The globulins on heating partially disappear at 60° C. and at 70° C. the serum consists almost entirely of albumin. With many samples, there is a tendency for the serum to gelatinise at 70° C.; this is obviated by testing a small sample beforehand, and ascertaining whether dilution with ¼ to 1/5th of its volume with normal saline is necessary to obviate this effect.

In practice, blood is collected at the slaughterhouse, and the serum drained off from the clot is tested for gelatinisation as above, filtered through a Seitz filter, and distributed in 400 c.c. units in standard transfusion bottles with perforated screw caps and rubber diaphragms, the requisite amount of formalin and ammonia being added by injection through the cap. The bottles are placed in a water bath at 60° C. (to prevent cracking of the glass), raised rapidly to 75° C., and kept at this temperature for 30 minutes, the serum thus reaching about 73° C. On cooling, the serum is ready for use. The protein content is about 5 g. per cent.; pH is 8. Tests showed it had no agglutinating or haemolytic action, within the specified periods of testing, on human red blood cells. It had no toxic effects, in 6 c.c. doses, on parental injection into rabbits, and was completely absorbed in three weeks. Its osmotic pressure was comparable to that of filtered human plasma. It cannot be overlooked that there is a possibility of transmitting *Myco. tuberculosis* and *Br. abortus* with this product, although these organisms ought to be eliminated by the Seitz filtration. The author gives reports of a preliminary clinical trial on 26 human cases, injected with doses varying from 400 to 2,400 c.c., and the results would indicate that it is safe to administer to man.

The particulars given have been reproduced here rather fully, because it would seem that, especially in small-animal practice, this product may possibly have considerable indications in veterinary work. The ease of preparation will certainly commend it for early trial in many of these cases of shock or of extreme debility, from various causes, often associated with oedema, in which the protein content and osmotic pressure of the circulating blood has fallen very low.

J. T. E.

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A scheme to give farmers "professional status" by the establishment of a diploma-granting Farmers' Institute has been drawn up by Mr. Humphrey Jamison, Secretary of Ulster Farmers' Union.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

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RECRUITMENT REQUIREMENTS OF THE VETERINARY PROFESSION

Sir,—Mr. Ll. E. W. Bevan makes an entirely adequate reply to Professor McCunn's enquiry as to whether the nation does require an additional 2,000 veterinary surgeons. The requirement is obvious to all and is probably an underestimate, but whether it is politic to pursue the theme until we have a settled long-termed policy for the profession is another matter. Such a policy must be intimately bound up with a long-term policy for agriculture and as yet there are no concrete signs of such a policy being produced. When and if it is, and the profession knows what part it has to play in the agriculture of the future, the time will be ripe to decide what increase of graduates to the profession is necessary to carry out the work allocated to us. Nevertheless, it is the bounden duty of the profession to state clearly now the part which it is capable of playing, and is prepared to play, in post-war agriculture and public health work so that its rightful place is accorded to it in any long-term policy the Government produces. Others have stressed the same theme as Mr. Bevan, notably our immediate Past-President, but there appears to be no great effort on the part of our governing bodies to state their policy in unequivocal terms. If we cannot formulate and state a policy for ourselves and sink personal interests in the process (for the ultimate good and advancement of the profession) then others will dictate to us the part we have to play.

Yours faithfully,

H. IVOR FIELD.

5, College Road,
Bangor, Caerns.
April 4th, 1944.